REMARKS/ ARGUMENTS

This Amendment is submitted in response to the office action mailed June 18, 2009, in connection with the above-identified application (hereinafter, the "Office Action"). The Office Action provided a three-month shortened statutory period in which to respond, ending on September 18, 2009. Accordingly, this amendment is timely submitted.

Claims 1-9, 12 and 13 are currently pending. Applicants have amended Claims 1, 2, 5, 7 and 8 and canceled claims 4 and 6, which when considered with the following remarks is deemed to place the present application in condition for allowance. Support for the foregoing amendments may be found throughout the specification, for example, the fourth paragraph on page 3, the first and second paragraph on page 4 and claims as originally filed. Favorable consideration of all pending claims is respectfully requested.

Rejection under 35 U.S.C. §103

Claims 1-9, 12 and 13 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,849,774 to Boudreau et al. ("Boudreau") and/or U.S. 7,153,974 to Schmidt et al ("Schmidt").

Applicants have amended Claim 1 to highlight that the ionic liquid comprises a mixture of one or more triflate or bis(trifluoromethylsulfonyl)imide salt(s) of an ammonium, phophonium, imidazolium or pyridinium ion and one or more Lewis acid(s) selected from the group $AlCl_3$, $AlBr_3$, $SnCl_2$, $FeCl_3$, or $ZnCl_2$. Claims 1 and 2 have been further amended to specify that the total molar content of the Lewis acid in the mixture is greater than 50%. In view of the foregoing amendments, claims 2, 4 and 6 have been cancelled. Claims 5, 7 and 8 have been amended to correct their dependency. Further support for the foregoing amendments is found throughout the original specification, for example, the fourth paragraph on page 3, the first and second paragraph on page 4 and original claims.

Applicants respectfully submit that the present invention is patentable over Boudreau alone or in combination with Schmidt. *Graham v. John Deere Co. of Kansas City*, 383 U. S. 1, 17--18 (1966), establishes an objective analysis for applying §103 to a question of obviousness: "the scope and content of the prior art are . . . determined; differences between the prior art and the claims at issue are . . . ascertained; and the level of ordinary skill in the pertinent art resolved." The USPTO bears the burden of establishing a *prima facie* case of obviousness based on the results of the factual inquiries under *Graham*. The *prima facie* case generally requires three showings: 1) some suggestion or motivation, either in the references themselves or in the knowledge generally

available to one of ordinary skill in the art, to modify the reference or combine reference teachings; 2) a reasonable expectation of success; and 3) that the prior art reference or combination of references teaches or suggests all of the claim limitations. MPEP §2143.

Applicants respectfully submit that a *prima facie* case of obviousness has not been established. As previously mentioned, the present invention focuses on ionic liquids having a specific composition of one or more triflate or bis(trifluoromethylsulfonyl)imide salt(s) of an ammonium, phophonium, imidazolium or pyridinium ion and one or more Lewis acid(s) selected from the group $AlCl_3$, $AlBr_3$, $SnCl_2$, $FeCl_3$, or $ZnCl_2$. The ionic liquid of the present invention requires that the total molar content of the Lewis acid in the mixture be greater than 50%. It was surprisingly discovered that the specific ionic liquids of the present invention could achieve a higher mixing ratio of Lewis Acid without being limited by activity and selectivity of the system in an acid-catalyzed reaction. In addition, it was discovered that the specific ionic liquids of the present invention achieved higher stability than previous technology.

Applicants respectfully submit that amended Claim 1 is patentable over Boudreau. One of the elements to establish a prima facie case of obviousness is that the references teach every claim limitation. Boudreau is focused on methods for separating di-olefins from mono-olefins by using heavy metal Group IB salts (preferably silver or copper) dissolved, dispersed or suspended in an ionic liquid. In contrast to the present invention, Boudreau fails to teach or suggest any ionic liquids having a mixture of both (1) one or more triflate or bis(trifluoromethylsulfonyl)imide salt(s) of an ammonium, phophonium, imidazolium or pyridinium ion and (2) one or more Lewis acid(s) selected from the group $AlCl_3$, $AlBr_3$, $SnCl_2$, $FeCl_3$, or $ZnCl_2$. Boudreau further fails to teach or suggest any ionic liquids having the total molar content of the Lewis acid(s) selected from the group $AlCl_3$, $AlBr_3$, $SnCl_2$, $FeCl_3$, or $ZnCl_2$ is greater than 50%.

Applicants respectfully submit that amended Claim 1 is patentable over Schmidt. One of the elements to establish a prima facie case of obviousness is that the references teach every claim limitation. Schmidt is focused the use of ionic liquids for use in electrochemical cells and capacitors and narrowly defines the ionic liquids to include the anions $[PF_x(C_yF_{2y+1-x}H_z)_{6-x}]^-$, $[B(OR^7)_n(OR^8)_m(OR^9)_o(OR^{10})_p]^-$. In contrast to the present invention, Schmidt fails to teach or suggest any ionic liquids having a mixture of both (1) one or more triflate or bis(trifluoromethylsulfonyl)imide salt(s) of an ammonium, phophonium, imidazolium or pyridinium ion and (2) one or more Lewis acid(s) selected from the group $AlCl_3$, $AlBr_3$, $SnCl_2$, $FeCl_3$, or $ZnCl_2$. Schmidt further fails to teach or suggest any ionic liquids having the total molar content of the Lewis acid(s) selected from the group $AlCl_3$, $AlBr_3$, $SnCl_2$, $FeCl_3$, or $ZnCl_2$ is greater than 50%.

Applicants further submit that a prima facie case of obviousness has not been established since there is no motivation to combine Boudreau in view of Schmidt. A *prima facie* case of obviousness must establish some apparent reason why one would modify the expressly disclosed compounds to achieve the compounds expressly claimed in the present invention. *See KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)('[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.') According to the Supreme Court, a proper case of *prima facie* obviousness must be articulated to a patent application by setting forth the reasoning and underlying rationale used to arrive at a legal conclusion of obviousness. *Id.*

Applicants respectfully submit that amended Claim 1 is patentable over Boudreau in view of Schmidt. One of the elements to establish a prima facie case of obviousness is that the combined references teach or suggest every claim limitation. Both Boudreau and Schmidt fail to teach or suggest any ionic liquids having a mixture of both (1) one or more triflate or bis(trifluoromethylsulfonyl)- imide salt(s) of an ammonium, phophonium, imidazolium or pyridinium ion and (2) one or more Lewis acid(s) selected from the group $AlCl_3$, $AlBr_3$, $SnCl_2$, $FeCl_3$, or $ZnCl_2$. Both Boudreau and Schmidt further fail to teach or suggest any ionic liquids having the total molar content of the Lewis acid(s) selected from the group $AlCl_3$, $AlBr_3$, $SnCl_2$, $FeCl_3$, or $ZnCl_2$ is greater than 50%.

In addition, Applicants submit that the cited references and the art do not offer any teaching or suggestion for one of ordinary skill to modify and combine these references to arrive at the present invention. Boudreau and Schmidt concern drastically different technologies. As previously stated, Boudreau is focused on methods for separating di-olefins from mono-olefins by using heavy metal Group IB salts (preferably silver or copper) dissolved, dispersed or suspended in an ionic liquid. Schmidt is focused the use of ionic liquids for use in electrochemical cells and capacitors and narrowly defines the ionic liquids to include the anions $[PF_x(C_yF_{2y+1-w}H_z)_{6-x}]^-$, $[B(OR^7)_n(OR^8)_m(OR^9)_o(OR^{10})_p]^-$. There is no evidence that these teachings would be combined by one of ordinary skill in the art at the time of the invention.

For these reasons, Applicants respectfully submit that amended Claim 1 is patentable over Boudreau alone or in combination with Schmidt.

Claims 1-9, 12 and 13 are further rejected under 35 U.S.C. §103(a) as being unpatentable over WO 02/072260 to Earle et ("Earle").

Applicants respectfully traverse the Examiner's rejection of claims 1-9, 12 and 13 of the present application under 35 U.S.C. §103 over Earle. One of the elements to establish a prima facie case of obviousness is that the references teach every claim limitation. Contrary to the Examiner's assertion, Earle does not teach "an ionic liquid-Lewis acid mixture analogous to that recited in the claims by the addition of over 50 mol% of the Lewis acid". Earle describes an alternative metal bistriflimide compound that may be used in reactions typically catalyzed or mediated by Lewis acids. (Earle, page 5, lines 8-17.) Contrary to the Examiner's assertion (Office Action, page 3), the cited section and other disclosures of Earle do not teach that an overstoichiometric amount of Lewis Acid can be used in the reaction but instead merely that lower amount of 1 mol %metal bis-triflimide was used as compared to prior technology. (Page 5, line 23 to Page 6, line 2.)

Earle teaches away from the use of Lewis Acids of the present amended claim 1 by asserting that these new alternative compounds "possess advantages over Lewis acids such as aluminum (III) chloride in that they do not form excessively strong complexes with the reactants or products of a chemical transformation." Earle also teaches away from the use of higher amounts of Lewis Acids by explaining that iron (III) chloride "renders [the Friedels craft reaction] almost inactive]. In contrast to the present invention, Earle only discloses the possible use of low quantities of iron (III) chloride in an amount of 1 mol%. (See, for example, the first reaction on page 15 and Example 14.) Earle fails to teach or suggest any ionic liquids having the total molar content of the Lewis acid(s) selected from the group $AlCl_3$, $AlBr_3$, $SnCl_2$, $FeCl_3$, or $ZnCl_2$ is greater than 50%.

In addition, Earle fails to teach or suggest any ionic liquids including one or more triflate or bis(trifluoromethylsulfonyl)- imide salt(s) of an ammonium, phophonium, imidazolium or pyridinium ion as disclosed in the present invention of amended Claim 1. The present invention and Earle disclose two different technologies.

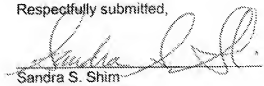
For these reasons, Applicants respectfully submit that amended Claim 1 is patentable over Earle.

Applicants respectfully submit that Claims 2-3, 5, 9 , 12 and 13 are in condition for allowance as they depend from an allowable independent base claim.

Thus, in view of the foregoing arguments, Applicants respectfully request that the claims of the present invention be reconsidered. If a telephone interview would be of assistance in advancing

the prosecution of this application. Applicants' undersigned attorney invites the Examiner to telephone her at the telephone number provided below.

Respectfully submitted,



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